

20221Y



SEQUENCE LISTING

<110> Anthony Rosen
Donald W. Nicholson
Livia Casciola-Rosen
Felipe A. Andrade
Sophie Roy
Nancy A. Thornberry

<120> AUTOANTIGENIC FRAGMENTS, METHODS AND
ASSAYS

<130> 20221Y

<140> 09/296,662

<141> 1999-04-22

<150> PCT/US99/08774

<151> 1999-04-22

<150> 60/000,060

<151> 1998-04-22

F₁
<160> 37

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 4

<212> PRT

<213> Human

<400> 1

Asp Glu Val Asp

1

<210> 2

<211> 4

<212> PRT

<213> Human

<400> 2

Ile Glu Ala Asp

1

<210> 3

<211> 5

<212> PRT

<213> Human

<400> 3

Val Ala Thr Asp Ala

1

5

<210> 4

RECEIVED

APR 16 2003

TECH CENTER 1600/2900

<211> 5
 <212> PRT
 <213> Human

<400> 4
 Val Asp Pro Asp Tyr
 1 5

<210> 5
 <211> 5
 <212> PRT
 <213> Human

<400> 5
 Leu Glu Glu Asp Ala
 1 5

<210> 6
 <211> 5
 <212> PRT
 <213> Human

<400> 6
 Leu Thr Pro Asp Lys
 1 5

<210> 7
 <211> 5
 <212> PRT
 <213> Human

<400> 7
 Val Gly Pro Asp Gly
 1 5

<210> 8
 <211> 5
 <212> PRT
 <213> Human

<400> 8
 Val Asp Pro Asp Ser
 1 5

<210> 9
 <211> 5
 <212> PRT
 <213> Human

<400> 9
 Leu Gly Asn Asp Ser
 1 5

<210> 10
 <211> 5

<212> PRT
<213> Human

<400> 10
Val Glu Lys Asp Ser
1 5

<210> 11
<211> 5
<212> PRT
<213> Human

<400> 11
Val Thr Pro Asp Gln
1 5

<210> 12
<211> 5
<212> PRT
<213> Human

F1
<400> 12
Leu Gly Pro Asp Glu
1 5

<210> 13
<211> 5
<212> PRT
<213> Human

<400> 13
Val Ala Pro Asp Arg
1 5

<210> 14
<211> 5
<212> PRT
<213> Human

<400> 14
Ile Cys Pro Asp Met
1 5

<210> 15
<211> 5
<212> PRT
<213> Human

<400> 15
Val Cys Thr Asp Lys
1 5

<210> 16
<211> 5
<212> PRT

<213> Human

<400> 16

Val Glu Gln Asp Met
1 5

<210> 17

<211> 5

<212> PRT

<213> Human

<400> 17

Val Asp Ser Asp Glu
1 5

<210> 18

<211> 5

<212> PRT

<213> Human

<400> 18

Ile Thr Pro Asp Pro
1 5

<210> 19

<211> 5

<212> PRT

<213> Human

<400> 19

Val Thr Pro Asp Pro
1 5

<210> 20

<211> 5

<212> PRT

<213> Human

<400> 20

Ile Ser Ser Asp Arg
1 5

<210> 21

<211> 4

<212> PRT

<213> Human

<400> 21

Ile Cys Thr Asp
1

<210> 22

<211> 4

<212> PRT

<213> Human

<400> 22
Val Asp Val Asp
1

<210> 23
<211> 4
<212> PRT
<213> Human

<400> 23
Ser Glu Val Asp
1

<210> 24
<211> 5
<212> PRT
<213> Human

<400> 24
Val Gly Pro Asp Phe
1 5

F
1
<210> 25
<211> 5
<212> PRT
<213> Human

<400> 25
Asp Glu Val Asp Asn
1 5

<210> 26
<211> 4
<212> PRT
<213> Human

<400> 26
Tyr Val Ala Asp
1

<210> 27
<211> 5
<212> PRT
<213> Human

<400> 27
Val Gly Pro Asp Ser
1 5

<210> 28
<211> 4
<212> PRT
<213> Human

<400> 28
Ile Glu Thr Asp
1

<210> 29
<211> 5
<212> PRT
<213> Human

<400> 29
Val Asp Gln Asp Gly
1 5

<210> 30
<211> 5
<212> PRT
<213> Human

<400> 30
Val Leu Gly Asp Val
1 5

<210> 31
<211> 5
<212> PRT
<213> Human

<400> 31
Asp Trp Val Asp Gly
1 5

<210> 32
<211> 2101
<212> PRT
<213> Human

<400> 32
Met Thr Leu His Ala Thr Arg Gly Ala Ala Leu Leu Ser Trp Val Asn
1 5 10 15
Ser Leu His Val Ala Asp Pro Val Glu Ala Val Leu Gln Leu Gln Asp
20 25 30
Cys Ser Ile Phe Ile Lys Ile Ile Asp Arg Ile His Gly Thr Glu Glu
35 40 45
Gly Gln Gln Ile Leu Lys Gln Pro Val Ser Glu Arg Leu Asp Phe Val
50 55 60
Cys Ser Phe Leu Gln Lys Asn Arg Lys His Pro Ser Ser Pro Glu Cys
65 70 75 80
Leu Val Ser Ala Gln Lys Val Leu Glu Gly Ser Glu Leu Glu Leu Ala
85 90 95
Lys Met Thr Met Leu Leu Leu Tyr His Ser Thr Met Ser Ser Lys Ser
100 105 110
Pro Arg Asp Trp Glu Gln Phe Glu Tyr Lys Ile Gln Ala Glu Leu Ala
115 120 125
Val Ile Leu Lys Phe Val Leu Asp His Glu Asp Gly Leu Asn Leu Asn
130 135 140

Glu Asp Leu Glu Asn Phe Leu Gln Lys Ala Pro Val Pro Ser Thr Cys
 145 150 155 160
 Ser Ser Thr Phe Pro Glu Glu Leu Ser Pro Pro Ser His Gln Ala Lys
 165 170 175
 Arg Glu Ile Arg Phe Leu Glu Leu Gln Lys Val Ala Ser Ser Ser Ser
 180 185 190
 Gly Asn Asn Phe Leu Ser Gly Ser Pro Ala Ser Pro Met Gly Asp Ile
 195 200 205
 Leu Gln Thr Pro Gln Phe Gln Met Arg Arg Leu Lys Lys Gln Leu Ala
 210 215 220
 Asp Glu Arg Ser Asn Arg Asp Glu Leu Glu Leu Glu Leu Ala Glu Asn
 225 230 235 240
 Arg Lys Leu Leu Thr Glu Lys Asp Ala Gln Ile Ala Met Met Gln Gln
 245 250 255
 Arg Ile Asp Arg Leu Ala Leu Leu Asn Glu Lys Gln Ala Ala Ser Pro
 260 265 270
 Leu Glu Pro Lys Glu Leu Glu Glu Leu Arg Asp Lys Asn Glu Ser Leu
 275 280 285
 Thr Met Arg Leu His Glu Thr Leu Lys Gln Cys Gln Asp Leu Lys Thr
 290 295 300
 Glu Lys Ser Gln Met Asp Arg Lys Ile Asn Gln Leu Ser Glu Glu Asn
 305 310 315 320
 Gly Asp Leu Ser Phe Lys Leu Arg Glu Phe Ala Ser His Leu Gln Gln
 325 330 335
 Leu Gln Asp Ala Leu Asn Glu Leu Thr Glu Glu His Ser Lys Ala Thr
 340 345 350
 Gln Glu Trp Leu Glu Lys Gln Ala Gln Leu Glu Lys Glu Leu Ser Ala
 355 360 365
 Ala Leu Gln Asp Lys Lys Cys Leu Glu Glu Lys Asn Glu Ile Leu Gln
 370 375 380
 Gly Lys Leu Ser Gln Leu Glu Glu His Leu Ser Gln Leu Gln Asp Asn
 385 390 395 400
 Pro Pro Gln Glu Lys Gly Glu Val Leu Gly Asp Val Leu Gln Leu Glu
 405 410 415
 Thr Leu Lys Gln Glu Ala Ala Thr Leu Ala Ala Asn Asn Thr Gln Leu
 420 425 430
 Gln Ala Arg Val Glu Met Leu Glu Thr Glu Arg Gly Gln Gln Glu Ala
 435 440 445
 Lys Leu Leu Ala Glu Arg Gly His Phe Glu Glu Glu Lys Gln Gln Leu
 450 455 460
 Ser Ser Leu Ile Thr Asp Leu Gln Ser Ser Ile Ser Asn Leu Ser Gln
 465 470 475 480
 Ala Lys Glu Glu Leu Glu Gln Ala Ser Gln Ala His Gly Ala Arg Leu
 485 490 495
 Thr Ala Gln Val Ala Ser Leu Thr Ser Glu Leu Thr Thr Leu Asn Ala
 500 505 510
 Thr Ile Gln Gln Gln Asp Gln Glu Leu Ala Gly Leu Lys Gln Gln Ala
 515 520 525
 Lys Glu Lys Gln Ala Gln Leu Ala Gln Thr Leu Gln Gln Gln Glu Gln
 530 535 540
 Ala Ser Gln Gly Leu Arg His Gln Val Glu Gln Leu Ser Ser Ser Leu
 545 550 555 560
 Lys Gln Lys Glu Gln Gln Leu Lys Glu Val Ala Glu Lys Gln Glu Ala
 565 570 575

Thr Arg Gln Asp His Ala Gln Gln Leu Ala Thr Ala Ala Glu Glu Arg
 580 585 590
 Glu Ala Ser Leu Arg Glu Arg Asp Ala Ala Leu Lys Gln Leu Glu Ala
 595 600 605
 Leu Glu Lys Glu Lys Ala Ala Lys Leu Glu Ile Leu Gln Gln Gln Leu
 610 615 620
 Gln Val Ala Asn Glu Ala Arg Asp Ser Ala Gln Thr Ser Val Thr Gln
 625 630 635 640
 Ala Gln Arg Glu Lys Ala Glu Leu Ser Arg Lys Val Glu Glu Leu Gln
 645 650 655
 Ala Cys Val Glu Thr Ala Arg Gln Glu Gln His Glu Ala Gln Ala Gln
 660 665 670
 Val Ala Glu Leu Glu Leu Gln Leu Arg Ser Glu Gln Gln Lys Ala Thr
 675 680 685
 Glu Lys Glu Arg Val Ala Gln Glu Lys Asp Gln Leu Gln Glu Gln Leu
 690 695 700
 Gln Ala Leu Lys Glu Ser Leu Lys Val Thr Lys Gly Ser Leu Glu Glu
 705 710 715 720
 Glu Lys Arg Arg Ala Ala Asp Ala Leu Glu Glu Gln Gln Arg Cys Ile
 725 730 735
 Ser Glu Leu Lys Ala Glu Thr Arg Ser Leu Val Glu Gln His Lys Arg
 740 745 750
 Glu Arg Lys Glu Leu Glu Glu Glu Arg Ala Gly Arg Lys Gly Leu Glu
 755 760 765
 Ala Arg Leu Leu Gln Leu Gly Glu Ala His Gln Ala Glu Thr Glu Val
 770 775 780
 Leu Arg Arg Glu Leu Ala Glu Ala Met Ala Ala Gln His Thr Ala Glu
 785 790 795 800
 Ser Glu Cys Glu Gln Leu Val Lys Glu Val Ala Ala Trp Arg Asp Gly
 805 810 815
 Tyr Glu Asp Ser Gln Gln Glu Glu Ala Gln Tyr Gly Ala Met Phe Gln
 820 825 830
 Glu Gln Leu Met Thr Leu Lys Glu Glu Cys Glu Lys Ala Arg Gln Glu
 835 840 845
 Leu Gln Glu Ala Lys Glu Lys Val Ala Gly Ile Glu Ser His Ser Glu
 850 855 860
 Leu Gln Ile Ser Arg Gln Gln Asn Lys Leu Ala Glu Leu His Ala Asn
 865 870 875 880
 Leu Ala Arg Ala Leu Gln Gln Val Gln Glu Lys Glu Val Arg Ala Gln
 885 890 895
 Lys Leu Ala Asp Asp Leu Ser Thr Leu Gln Glu Lys Met Ala Ala Thr
 900 905 910
 Ser Lys Glu Val Ala Arg Leu Glu Thr Leu Val Arg Lys Ala Gly Glu
 915 920 925
 Gln Gln Glu Thr Ala Ser Arg Glu Leu Val Lys Glu Pro Ala Arg Ala
 930 935 940
 Gly Asp Arg Gln Pro Glu Trp Leu Glu Glu Gln Gln Gly Arg Gln Phe
 945 950 955 960
 Cys Ser Thr Gln Ala Ala Leu Gln Ala Met Glu Arg Glu Ala Glu Gln
 965 970 975
 Met Gly Asn Glu Leu Glu Arg Leu Arg Ala Ala Leu Met Glu Ser Gln
 980 985 990
 Gly Gln Gln Gln Glu Glu Arg Gly Gln Gln Glu Arg Glu Val Ala Arg
 995 1000 1005

Leu Thr Gln Glu Arg Gly Arg Ala Gln Ala Asp Leu Ala Leu Glu Lys
 1010 1015 1020
 Ala Ala Arg Ala Glu Leu Glu Met Arg Leu Gln Asn Ala Leu Asn Glu
 1025 1030 1035 1040
 Gln Arg Val Glu Phe Ala Thr Leu Gln Glu Ala Leu Ala His Ala Leu
 1045 1050 1055
 Thr Glu Lys Glu Gly Lys Asp Gln Glu Leu Ala Lys Leu Arg Gly Leu
 1060 1065 1070
 Glu Ala Ala Gln Ile Lys Glu Leu Glu Glu Leu Arg Gln Thr Val Lys
 1075 1080 1085
 Gln Leu Lys Glu Gln Leu Ala Lys Lys Glu Lys Glu His Ala Ser Gly
 1090 1095 1100
 Ser Gly Ala Gln Ser Glu Ala Ala Gly Arg Thr Glu Pro Thr Gly Pro
 1105 1110 1115 1120
 Lys Leu Glu Ala Leu Arg Ala Glu Val Ser Lys Leu Glu Gln Gln Cys
 1125 1130 1135
 Gln Lys Gln Gln Glu Gln Ala Asp Ser Leu Glu Arg Ser Leu Glu Ala
 1140 1145 1150
 Glu Arg Ala Ser Arg Ala Glu Arg Asp Ser Ala Leu Glu Thr Leu Gln
 1155 1160 1165
 Gly Gln Leu Glu Glu Lys Ala Gln Glu Leu Gly His Ser Gln Ser Ala
 1170 1175 1180
 Leu Ala Ser Ala Gln Arg Glu Leu Ala Ala Phe Arg Thr Lys Val Gln
 1185 1190 1195 1200
 Asp His Ser Lys Ala Glu Asp Glu Trp Lys Ala Gln Val Ala Arg Gly
 1205 1210 1215
 Arg Gln Glu Ala Glu Arg Lys Asn Ser Leu Ile Ser Ser Leu Glu Glu
 1220 1225 1230
 Glu Val Ser Ile Leu Asn Arg Gln Val Leu Glu Lys Glu Gly Glu Ser
 1235 1240 1245
 Lys Glu Leu Lys Arg Leu Val Met Ala Glu Ser Glu Lys Ser Gln Lys
 1250 1255 1260
 Leu Glu Glu Ser Cys Ala Cys Cys Arg Gln Arg Gln Pro Ala Thr Val
 1265 1270 1275 1280
 Pro Glu Leu Gln Asn Ala Ala Leu Leu Cys Gly Arg Arg Cys Arg Ala
 1285 1290 1295
 Ser Gly Arg Glu Ala Glu Lys Gln Arg Val Ala Ser Glu Asn Leu Arg
 1300 1305 1310
 Gln Glu Leu Thr Ser Gln Ala Glu Arg Ala Glu Glu Leu Gly Gln Glu
 1315 1320 1325
 Leu Lys Ala Trp Gln Glu Lys Phe Phe Gln Lys Glu Gln Ala Leu Ser
 1330 1335 1340
 Thr Leu Gln Leu Glu His Thr Ser Thr Gln Ala Leu Val Ser Glu Leu
 1345 1350 1355 1360
 Leu Pro Ala Lys His Leu Cys Gln Gln Leu Gln Ala Glu Gln Ala Ala
 1365 1370 1375
 Ala Glu Lys Arg His Arg Glu Glu Leu Glu Gln Ser Lys Gln Ala Ala
 1380 1385 1390
 Gly Gly Leu Arg Ala Glu Leu Leu Arg Ala Gln Arg Glu Leu Gly Glu
 1395 1400 1405
 Leu Ile Pro Leu Arg Gln Lys Val Ala Glu Gln Glu Arg Thr Ala Gln
 1410 1415 1420
 Gln Leu Arg Ala Glu Lys Ala Ser Tyr Ala Glu Gln Leu Ser Met Leu
 1425 1430 1435 1440

Lys Lys Ala His Gly Leu Leu Ala Glu Glu Asn Arg Gly Leu Gly Glu
 1445 1450 1455
 Arg Ala Asn Leu Gly Arg Gln Phe Leu Glu Val Glu Leu Asp Gln Ala
 1460 1465 1470
 Arg Glu Lys Tyr Val Gln Glu Leu Ala Ala Val Arg Ala Asp Ala Glu
 1475 1480 1485
 Thr Arg Leu Ala Glu Val Gln Arg Glu Ala Gln Ser Thr Ala Arg Glu
 1490 1495 1500
 Leu Glu Val Met Thr Ala Lys Tyr Glu Gly Ala Lys Val Lys Val Leu
 1505 1510 1515 1520
 Glu Glu Arg Gln Arg Phe Gln Glu Glu Arg Gln Lys Leu Thr Ala Gln
 1525 1530 1535
 Val Glu Glu Leu Ser Lys Lys Leu Ala Asp Ser Asp Gln Ala Ser Lys
 1540 1545 1550
 Val Gln Gln Gln Lys Leu Lys Ala Val Gln Ala Gln Gly Glu Ser
 1555 1560 1565
 Gln Gln Glu Ala Gln Arg Phe Gln Ala Gln Leu Asn Glu Leu Gln Ala
 1570 1575 1580
 Gln Leu Ser Gln Lys Glu Gln Ala Ala Glu His Tyr Lys Leu Gln Met
 1585 1590 1595 1600
 Glu Lys Ala Lys Thr His Tyr Asp Ala Lys Lys Gln Gln Asn Gln Glu
 1605 1610 1615
 Leu Gln Glu Gln Leu Arg Ser Leu Glu Gln Leu Gln Lys Glu Asn Lys
 1620 1625 1630
 Glu Leu Arg Ala Glu Ala Glu Arg Leu Gly His Glu Leu Gln Gln Ala
 1635 1640 1645
 Gly Leu Lys Thr Lys Glu Ala Glu Gln Thr Cys Arg His Leu Thr Ala
 1650 1655 1660
 Gln Val Arg Ser Leu Glu Ala Gln Val Ala His Ala Asp Gln Gln Leu
 1665 1670 1675 1680
 Arg Asp Leu Gly Lys Phe Gln Val Ala Thr Asp Ala Leu Lys Ser Arg
 1685 1690 1695
 Glu Pro Gln Ala Lys Pro Gln Leu Asp Leu Ser Ile Asp Ser Leu Asp
 1700 1705 1710
 Leu Ser Cys Glu Glu Gly Thr Pro Leu Ser Ile Thr Ser Lys Leu Pro
 1715 1720 1725
 Arg Thr Gln Pro Asp Gly Thr Ser Val Pro Gly Glu Pro Ala Ser Pro
 1730 1735 1740
 Ile Ser Gln Arg Leu Pro Pro Lys Val Glu Ser Leu Glu Ser Leu Tyr
 1745 1750 1755 1760
 Phe Thr Pro Ile Pro Ala Arg Ser Gln Ala Pro Leu Glu Ser Ser Leu
 1765 1770 1775
 Asp Ser Leu Gly Asp Val Phe Leu Asp Ser Gly Arg Lys Thr Arg Ser
 1780 1785 1790
 Ala Arg Arg Arg Thr Thr Gln Ile Ile Asn Ile Thr Met Thr Lys Lys
 1795 1800 1805
 Leu Asp Val Glu Glu Pro Asp Ser Ala Asn Ser Ser Phe Tyr Ser Thr
 1810 1815 1820
 Arg Ser Ala Pro Ala Ser Gln Ala Ser Leu Arg Ala Thr Ser Ser Thr
 1825 1830 1835 1840
 Gln Ser Leu Ala Arg Leu Gly Ser Pro Asp Tyr Gly Asn Ser Ala Leu
 1845 1850 1855
 Leu Ser Leu Pro Gly Tyr Arg Pro Thr Thr Arg Ser Ser Ala Arg Arg
 1860 1865 1870

Ser Gln Ala Gly Val Ser Ser Gly Ala Pro Pro Gly Arg Asn Ser Phe
 1875 1880 1885
 Tyr Met Gly Thr Cys Gln Asp Glu Pro Glu Gln Leu Asp Asp Trp Asn
 1890 1895 1900
 Arg Ile Ala Glu Leu Gln Gln Arg Asn Arg Val Cys Pro Pro His Leu
 1905 1910 1915 1920
 Lys Thr Cys Tyr Pro Leu Glu Ser Arg Pro Ser Leu Ser Leu Gly Thr
 1925 1930 1935
 Ile Thr Asp Glu Met Lys Thr Gly Asp Pro Gln Glu Thr Leu Arg
 1940 1945 1950
 Arg Ala Ser Met Gln Pro Ile Gln Ile Ala Glu Gly Thr Gly Ile Thr
 1955 1960 1965
 Thr Arg Gln Gln Arg Lys Arg Val Ser Leu Glu Pro His Gln Gly Pro
 1970 1975 1980
 Gly Thr Pro Glu Ser Lys Lys Ala Thr Ser Cys Phe Pro Arg Pro Met
 1985 1990 1995 2000
 Thr Pro Arg Asp Arg His Glu Gly Arg Lys Gln Ser Thr Thr Glu Ala
 2005 2010 2015
 Gln Lys Lys Ala Ala Pro Ala Ser Thr Lys Gln Ala Asp Arg Arg Gln
 2020 2025 2030
 Ser Met Ala Phe Ser Ile Leu Asn Thr Pro Lys Lys Leu Gly Asn Ser
 2035 2040 2045
 Leu Leu Arg Arg Gly Ala Ser Lys Lys Ala Leu Ser Lys Ala Ser Pro
 2050 2055 2060
 Asn Thr Arg Ser Gly Thr Arg Arg Ser Pro Arg Ile Ala Thr Thr Thr
 2065 2070 2075 2080
 Ala Ser Ala Ala Thr Ala Ala Ala Ile Gly Ala Thr Pro Arg Ala Lys
 2085 2090 2095
 Gly Lys Ala Lys His
 2100

<210> 33
 <211> 2115
 <212> PRT
 <213> Human

<400> 33
 Met Thr Leu His Ala Thr Arg Gly Ala Ala Leu Leu Ser Trp Val Asn
 1 5 10 15
 Ser Leu His Val Ala Asp Pro Val Glu Ala Val Leu Gln Leu Gln Asp
 20 25 30
 Cys Ser Ile Phe Ile Lys Ile Ile Asp Arg Ile His Gly Thr Glu Glu
 35 40 45
 Gly Gln Gln Ile Leu Lys Gln Pro Val Ser Glu Arg Leu Asp Phe Val
 50 55 60
 Cys Ser Phe Leu Gln Lys Asn Arg Lys His Pro Ser Ser Pro Glu Cys
 65 70 75 80
 Leu Val Ser Ala Gln Lys Val Leu Glu Gly Ser Glu Leu Glu Leu Ala
 85 90 95
 Lys Met Thr Met Leu Leu Leu Tyr His Ser Thr Met Ser Ser Lys Ser
 100 105 110
 Pro Arg Asp Trp Glu Gln Phe Glu Tyr Lys Ile Gln Ala Glu Leu Ala
 115 120 125
 Val Ile Leu Lys Phe Val Leu Asp His Glu Asp Gly Leu Asn Leu Asn
 130 135 140

Glu Asp Leu Glu Asn Phe Leu Gln Lys Ala Pro Val Pro Ser Thr Cys
 145 150 155 160
 Ser Ser Thr Phe Pro Glu Glu Leu Ser Pro Pro Ser His Gln Ala Lys
 165 170 175
 Arg Glu Ile Arg Phe Leu Glu Leu Gln Lys Val Ala Ser Ser Ser Ser
 180 185 190
 Gly Asn Asn Phe Leu Ser Gly Ser Pro Ala Ser Pro Met Gly Asp Ile
 195 200 205
 Leu Gln Thr Pro Gln Phe Gln Met Arg Arg Leu Lys Lys Gln Leu Ala
 210 215 220
 Asp Glu Arg Ser Asn Arg Asp Glu Leu Glu Leu Glu Leu Ala Glu Asn
 225 230 235 240
 Arg Lys Leu Leu Thr Glu Lys Asp Ala Gln Ile Ala Met Met Gln Gln
 245 250 255
 Arg Ile Asp Arg Leu Ala Leu Leu Asn Glu Lys Gln Ala Ala Ser Pro
 260 265 270
 Leu Glu Pro Lys Glu Leu Glu Glu Leu Arg Asp Lys Asn Glu Ser Leu
 275 280 285
 Thr Met Arg Leu His Glu Thr Leu Lys Gln Cys Gln Asp Leu Lys Thr
 290 295 300
 Glu Lys Ser Gln Met Asp Arg Lys Ile Asn Gln Leu Ser Glu Glu Asn
 305 310 315 320
 Gly Asp Leu Ser Phe Lys Leu Arg Glu Phe Ala Ser His Leu Gln Gln
 325 330 335
 Leu Gln Asp Ala Leu Asn Glu Leu Thr Glu Glu His Ser Lys Ala Thr
 340 345 350
 Gln Glu Trp Leu Glu Lys Gln Ala Gln Leu Glu Lys Glu Leu Ser Ala
 355 360 365
 Ala Leu Gln Asp Lys Lys Cys Leu Glu Glu Lys Asn Glu Ile Leu Gln
 370 375 380
 Gly Lys Leu Ser Gln Leu Glu Glu His Leu Ser Gln Leu Gln Asp Asn
 385 390 395 400
 Pro Pro Gln Glu Lys Gly Glu Val Leu Gly Asp Val Leu Gln Leu Glu
 405 410 415
 Thr Leu Lys Gln Glu Ala Ala Thr Leu Ala Ala Asn Asn Thr Gln Leu
 420 425 430
 Gln Ala Arg Val Glu Met Leu Glu Thr Glu Arg Gly Gln Gln Glu Ala
 435 440 445
 Lys Leu Leu Ala Glu Arg Gly His Phe Glu Glu Glu Lys Gln Gln Leu
 450 455 460
 Ser Ser Leu Ile Thr Asp Leu Gln Ser Ser Ile Ser Asn Leu Ser Gln
 465 470 475 480
 Ala Lys Glu Glu Leu Glu Gln Ala Ser Gln Ala His Gly Ala Arg Leu
 485 490 495
 Thr Ala Gln Val Ala Ser Leu Thr Ser Glu Leu Thr Thr Leu Asn Ala
 500 505 510
 Thr Ile Gln Gln Gln Asp Gln Glu Leu Ala Gly Leu Lys Gln Gln Ala
 515 520 525
 Lys Glu Lys Gln Ala Gln Leu Ala Gln Thr Leu Gln Gln Gln Glu Gln
 530 535 540
 Ala Ser Gln Gly Leu Arg His Gln Val Glu Gln Leu Ser Ser Ser Leu
 545 550 555 560
 Lys Gln Lys Glu Gln Gln Leu Lys Glu Val Ala Glu Lys Gln Glu Ala
 565 570 575

Thr Arg Gln Asp His Ala Gln Gln Leu Ala Thr Ala Ala Glu Glu Arg
 580 585 590
 Glu Ala Ser Leu Arg Glu Arg Asp Ala Ala Leu Lys Gln Leu Glu Ala
 595 600 605
 Leu Glu Lys Glu Lys Ala Ala Lys Leu Glu Ile Leu Gln Gln Gln Leu
 610 615 620
 Gln Val Ala Asn Glu Ala Arg Asp Ser Ala Gln Thr Ser Val Thr Gln
 625 630 635 640
 Ala Gln Arg Glu Lys Ala Glu Leu Ser Arg Lys Val Glu Glu Leu Gln
 645 650 655
 Ala Cys Val Glu Thr Ala Arg Gln Glu Gln His Glu Ala Gln Ala Gln
 660 665 670
 Val Ala Glu Leu Glu Leu Gln Leu Arg Ser Glu Gln Gln Lys Ala Thr
 675 680 685
 Glu Lys Glu Arg Val Ala Gln Glu Lys Asp Gln Leu Gln Glu Gln Leu
 690 695 700
 Gln Ala Leu Lys Glu Ser Leu Lys Val Thr Lys Gly Ser Leu Glu Glu
 705 710 715 720
 Glu Lys Arg Arg Ala Ala Asp Ala Leu Glu Glu Gln Gln Arg Cys Ile
 725 730 735
 Ser Glu Leu Lys Ala Glu Thr Arg Ser Leu Val Glu Gln His Lys Arg
 740 745 750
 Glu Arg Lys Glu Leu Glu Glu Glu Arg Ala Gly Arg Lys Gly Leu Glu
 755 760 765
 Ala Arg Leu Gln Gln Leu Gly Glu Ala His Gln Ala Glu Thr Glu Val
 770 775 780
 Leu Arg Arg Glu Leu Ala Glu Ala Met Ala Ala Gln His Thr Ala Glu
 785 790 795 800
 Ser Glu Cys Glu Gln Leu Val Lys Glu Val Ala Ala Trp Arg Glu Arg
 805 810 815
 Tyr Glu Asp Ser Gln Gln Glu Glu Ala Gln Tyr Gly Ala Met Phe Gln
 820 825 830
 Glu Gln Leu Met Thr Leu Lys Glu Glu Cys Glu Lys Ala Arg Gln Glu
 835 840 845
 Leu Gln Glu Ala Lys Glu Lys Val Ala Gly Ile Glu Ser His Ser Glu
 850 855 860
 Leu Gln Ile Ser Arg Gln Gln Asn Glu Leu Ala Glu Leu His Ala Asn
 865 870 875 880
 Leu Ala Arg Ala Leu Gln Gln Val Gln Glu Lys Glu Val Arg Ala Gln
 885 890 895
 Lys Leu Ala Asp Asp Leu Ser Thr Leu Gln Glu Lys Met Ala Ala Thr
 900 905 910
 Ser Lys Glu Val Ala Arg Leu Glu Thr Leu Val Arg Lys Ala Gly Glu
 915 920 925
 Gln Gln Glu Thr Ala Ser Arg Glu Leu Val Lys Glu Pro Ala Arg Ala
 930 935 940
 Gly Asp Arg Gln Pro Glu Trp Leu Glu Glu Gln Gln Gly Arg Gln Phe
 945 950 955 960
 Cys Ser Thr Gln Ala Ala Leu Gln Ala Met Glu Arg Glu Ala Glu Gln
 965 970 975
 Met Gly Asn Glu Leu Glu Arg Leu Arg Ala Ala Leu Met Glu Ser Gln
 980 985 990
 Gly Gln Gln Gln Glu Glu Arg Gly Gln Gln Glu Arg Glu Val Ala Arg
 995 1000 1005

Leu Thr Gln Glu Arg Gly Arg Ala Gln Ala Asp Leu Ala Leu Glu Lys
 1010 1015 1020
 Ala Ala Arg Ala Glu Leu Glu Met Arg Leu Gln Asn Ala Leu Asn Glu
 1025 1030 1035 1040
 Gln Arg Val Glu Phe Ala Thr Leu Gln Glu Ala Leu Ala His Ala Leu
 1045 1050 1055
 Thr Glu Lys Glu Gly Lys Asp Gln Glu Leu Ala Lys Leu Arg Gly Leu
 1060 1065 1070
 Glu Ala Ala Gln Ile Lys Glu Leu Glu Glu Leu Arg Gln Thr Val Lys
 1075 1080 1085
 Gln Leu Lys Glu Gln Leu Ala Lys Lys Glu Lys Glu His Ala Ser Gly
 1090 1095 1100
 Ser Gly Ala Gln Ser Glu Ala Ala Gly Arg Thr Glu Pro Thr Gly Pro
 1105 1110 1115 1120
 Lys Leu Glu Ala Leu Arg Ala Glu Val Ser Lys Leu Glu Gln Gln Cys
 1125 1130 1135
 Gln Lys Gln Gln Glu Gln Ala Asp Ser Leu Glu Arg Ser Leu Glu Ala
 1140 1145 1150
 Glu Arg Ala Ser Arg Ala Glu Arg Asp Ser Ala Leu Glu Thr Leu Gln
 1155 1160 1165
 Gly Gln Leu Glu Glu Lys Ala Gln Glu Leu Gly His Ser Gln Ser Ala
 1170 1175 1180
 Leu Ala Ser Ala Gln Arg Glu Leu Ala Ala Phe Arg Thr Lys Val Gln
 1185 1190 1195 1200
 Asp His Ser Lys Ala Glu Asp Glu Trp Lys Ala Gln Val Ala Arg Gly
 1205 1210 1215
 Arg Gln Glu Ala Glu Arg Lys Asn Ser Leu Ile Ser Ser Leu Glu Glu
 1220 1225 1230
 Glu Val Ser Ile Leu Asn Arg Gln Val Leu Glu Lys Glu Gly Glu Ser
 1235 1240 1245
 Lys Glu Leu Lys Arg Leu Val Met Ala Glu Ser Glu Lys Ser Gln Lys
 1250 1255 1260
 Leu Glu Glu Arg Leu Arg Leu Leu Gln Ala Glu Thr Ala Ser Asn Ser
 1265 1270 1275 1280
 Ala Arg Ala Ala Glu Arg Ser Ser Ala Leu Arg Glu Glu Val Gln Ser
 1285 1290 1295
 Leu Arg Glu Glu Ala Glu Lys Gln Arg Val Ala Ser Glu Asn Leu Arg
 1300 1305 1310
 Gln Glu Leu Thr Ser Gln Ala Glu Arg Ala Glu Glu Leu Gly Gln Glu
 1315 1320 1325
 Leu Lys Ala Trp Gln Glu Lys Phe Phe Gln Lys Glu Gln Ala Leu Ser
 1330 1335 1340
 Thr Leu Gln Leu Glu His Thr Ser Thr Gln Ala Leu Val Ser Glu Leu
 1345 1350 1355 1360
 Leu Pro Ala Lys His Leu Cys Gln Gln Leu Gln Ala Glu Gln Ala Ala
 1365 1370 1375
 Ala Glu Lys Arg His Arg Glu Glu Leu Glu Gln Ser Lys Gln Ala Ala
 1380 1385 1390
 Gly Gly Leu Arg Ala Glu Leu Leu Arg Ala Gln Arg Glu Leu Gly Glu
 1395 1400 1405
 Leu Ile Pro Leu Arg Gln Lys Val Ala Glu Gln Glu Arg Thr Ala Gln
 1410 1415 1420
 Gln Leu Arg Ala Glu Lys Ala Ser Tyr Ala Glu Gln Leu Ser Met Leu
 1425 1430 1435 1440

Lys Lys Ala His Gly Leu Leu Ala Glu Glu Asn Arg Gly Leu Gly Glu
 1445 1450 1455
 Arg Ala Asn Leu Gly Arg Gln Phe Leu Glu Val Glu Leu Asp Gln Ala
 1460 1465 1470
 Arg Glu Lys Tyr Val Gln Glu Leu Ala Ala Val Arg Ala Asp Ala Glu
 1475 1480 1485
 Thr Arg Leu Ala Glu Val Gln Arg Glu Ala Gln Ser Thr Ala Arg Glu
 1490 1495 1500
 Leu Glu Val Met Thr Ala Lys Tyr Glu Gly Ala Lys Val Lys Val Leu
 1505 1510 1515 1520
 Glu Glu Arg Gln Arg Phe Gln Glu Glu Arg Gln Lys Leu Thr Ala Gln
 1525 1530 1535
 Val Glu Gln Leu Glu Val Phe Gln Arg Glu Gln Thr Lys Gln Val Glu
 1540 1545 1550
 Glu Leu Ser Lys Lys Leu Ala Asp Ser Asp Gln Ala Ser Lys Val Gln
 1555 1560 1565
 Gln Gln Lys Leu Lys Ala Val Gln Ala Gln Gly Gly Glu Ser Gln Gln
 1570 1575 1580
 Glu Ala Gln Arg Leu Gln Ala Gln Leu Asn Glu Leu Gln Ala Gln Leu
 1585 1590 1595 1600
 Ser Gln Lys Glu Gln Ala Ala Glu His Tyr Lys Leu Gln Met Glu Lys
 1605 1610 1615
 Ala Lys Thr His Tyr Asp Ala Lys Lys Gln Gln Asn Gln Glu Leu Gln
 1620 1625 1630
 Glu Gln Leu Arg Ser Leu Glu Gln Leu Gln Lys Glu Asn Lys Glu Leu
 1635 1640 1645
 Arg Ala Glu Ala Glu Arg Leu Gly His Glu Leu Gln Gln Ala Gly Leu
 1650 1655 1660
 Lys Thr Lys Glu Ala Glu Gln Thr Cys Arg His Leu Thr Ala Gln Val
 1665 1670 1675 1680
 Arg Ser Leu Glu Ala Gln Val Ala His Ala Asp Gln Gln Leu Arg Asp
 1685 1690 1695
 Leu Gly Lys Phe Gln Val Ala Thr Asp Ala Leu Lys Ser Arg Glu Pro
 1700 1705 1710
 Gln Ala Lys Pro Gln Leu Asp Leu Ser Ile Asp Ser Leu Asp Leu Ser
 1715 1720 1725
 Cys Glu Glu Gly Thr Pro Leu Ser Ile Thr Ser Lys Leu Pro Arg Thr
 1730 1735 1740
 Gln Pro Asp Gly Thr Ser Val Pro Gly Glu Pro Ala Ser Pro Ile Ser
 1745 1750 1755 1760
 Gln Arg Leu Pro Pro Lys Val Glu Ser Leu Glu Ser Leu Tyr Phe Thr
 1765 1770 1775
 Pro Ile Pro Ala Arg Ser Gln Ala Pro Leu Glu Ser Ser Leu Asp Ser
 1780 1785 1790
 Leu Gly Asp Val Phe Gln Asp Ser Gly Arg Lys Thr Arg Ser Ala Arg
 1795 1800 1805
 Arg Arg Thr Thr Gln Ile Ile Asn Ile Thr Met Thr Lys Lys Leu Asp
 1810 1815 1820
 Val Glu Glu Pro Asp Ser Ala Asn Ser Ser Phe Tyr Ser Thr Arg Ser
 1825 1830 1835 1840
 Ala Pro Ala Ser Gln Ala Ser Leu Arg Ala Thr Ser Ser Thr Gln Ser
 1845 1850 1855
 Leu Ala Arg Leu Gly Ser Pro Asp Tyr Gly Asn Ser Ala Leu Leu Ser
 1860 1865 1870

Leu Pro Gly Tyr Arg Pro Thr Thr Arg Ser Ser Ala Arg Arg Ser Gln
 1875 1880 1885
 Ala Gly Val Ser Ser Gly Ala Pro Pro Gly Arg Asn Ser Phe Tyr Met
 1890 1895 1900
 Gly Thr Cys Gln Asp Glu Pro Glu Gln Leu Asp Asp Trp Asn Arg Ile
 1905 1910 1915 1920
 Ala Glu Leu Gln Gln Arg Asn Arg Val Cys Pro Pro His Leu Lys Thr
 1925 1930 1935
 Cys Tyr Pro Leu Glu Ser Arg Pro Ser Leu Ser Leu Gly Thr Ile Thr
 1940 1945 1950
 Asp Glu Glu Met Lys Thr Gly Asp Pro Gln Glu Thr Leu Arg Arg Ala
 1955 1960 1965
 Ser Met Gln Pro Ile Gln Ile Ala Glu Gly Thr Gly Ile Thr Thr Arg
 1970 1975 1980
 Gln Gln Arg Lys Arg Val Ser Leu Glu Pro His Gln Gly Pro Gly Thr
 1985 1990 1995 2000
 Pro Glu Ser Lys Lys Ala Thr Ser Cys Phe Pro Arg Pro Met Thr Pro
 2005 2010 2015
 Arg Asp Arg His Glu Gly Arg Lys Gln Ser Thr Thr Glu Ala Gln Lys
 2020 2025 2030
 Lys Ala Ala Pro Ala Ser Thr Lys Gln Ala Asp Arg Arg Gln Ser Met
 2035 2040 2045
 Ala Phe Ser Ile Leu Asn Thr Pro Lys Lys Leu Gly Asn Ser Leu Leu
 2050 2055 2060
 Arg Arg Gly Ala Ser Lys Lys Ala Leu Ser Lys Ala Ser Pro Asn Thr
 2065 2070 2075 2080
 Arg Ser Gly Thr Arg Arg Ser Pro Arg Ile Ala Thr Thr Thr Ala Ser
 2085 2090 2095
 Ala Ala Thr Ala Ala Ile Gly Ala Thr Pro Arg Ala Lys Gly Lys
 2100 2105 2110
 Ala Lys His
 2115

<210> 34
 <211> 4096
 <212> PRT
 <213> Human

<220>
 <221> VARIANT
 <222> (1)...(4096)
 <223> Xaa = Any Amino Acid

<400> 34
 Met Ala Gly Ser Gly Ala Gly Val Arg Cys Ser Leu Leu Arg Leu Gln
 1 5 10 15
 Glu Thr Leu Ser Ala Ala Asp Arg Cys Gly Ala Ala Leu Ala Gly His
 20 25 30
 Gln Leu Ile Arg Gly Leu Gly Gln Glu Cys Val Leu Ser Ser Ser Pro
 35 40 45
 Ala Val Leu Ala Leu Gln Thr Ser Leu Val Phe Ser Arg Asp Phe Gly
 50 55 60
 Leu Leu Val Phe Val Arg Lys Ser Leu Asn Ser Ile Glu Phe Arg Glu
 65 70 75 80

Cys Arg Glu Glu Ile Leu Lys Phe Leu Cys Ile Phe Leu Glu Lys Met
 85 90 95
 Gly Gln Lys Ile Ala Pro Tyr Ser Val Glu Ile Lys Asn Thr Cys Thr
 100 105 110
 Ser Val Tyr Thr Lys Asp Arg Ala Lys Cys Lys Ile Pro Ala Leu
 115 120 125
 Asp Leu Leu Ile Lys Leu Leu Gln Thr Phe Arg Ser Ser Arg Leu Met
 130 135 140
 Asp Glu Phe Lys Ile Gly Glu Leu Phe Ser Lys Phe Tyr Gly Glu Leu
 145 150 155 160
 Ala Leu Lys Lys Lys Ile Pro Asp Thr Val Leu Glu Lys Val Tyr Glu
 165 170 175
 Leu Leu Gly Leu Leu Gly Glu Val His Pro Ser Glu Met Ile Asn Asn
 180 185 190
 Ala Glu Asn Leu Phe Arg Ala Phe Leu Gly Glu Leu Lys Thr Gln Met
 195 200 205
 Thr Ser Ala Val Arg Glu Pro Lys Leu Pro Val Leu Ala Gly Cys Leu
 210 215 220
 Lys Gly Leu Ser Ser Leu Leu Cys Asn Phe Thr Lys Ser Met Glu Glu
 225 230 235 240
 Asp Pro Gln Thr Ser Arg Glu Ile Phe Asn Phe Val Leu Lys Ala Ile
 245 250 255
 Arg Pro Gln Ile Asp Leu Lys Arg Tyr Ala Val Pro Ser Ala Gly Leu
 260 265 270
 Arg Leu Phe Ala Leu His Ala Ser Gln Phe Ser Thr Cys Leu Leu Asp
 275 280 285
 Asn Tyr Val Ser Leu Phe Glu Val Leu Ile Lys Trp Cys Ala His Thr
 290 295 300
 Asn Val Glu Leu Lys Lys Ala Ala Leu Ser Ala Leu Glu Ser Phe Leu
 305 310 315 320
 Lys Gln Val Ser Asn Met Val Ala Lys Asn Ala Glu Met His Lys Asn
 325 330 335
 Lys Leu Gln Tyr Glu Met Glu Gln Phe Tyr Gly Ile Ile Arg Asn Val
 340 345 350
 Asp Ser Asn Asn Lys Glu Leu Ser Ile Ala Ile Arg Gly Tyr Gly Leu
 355 360 365
 Phe Ala Gly Pro Cys Lys Val Ile Asn Ala Lys Asp Val Asp Phe Met
 370 375 380
 Tyr Val Glu Leu Ile Gln Arg Cys Lys Gln Met Phe Leu Thr Gln Thr
 385 390 395 400
 Asp Thr Gly Asp Tyr Arg Val Tyr Gln Met Pro Ser Phe Leu Gln Ser
 405 410 415
 Val Ala Ser Val Leu Leu Tyr Leu Asp Thr Val Pro Glu Val Tyr Thr
 420 425 430
 Pro Val Leu Glu His Leu Val Val Met Gln Ile Asp Ser Phe Pro Gln
 435 440 445
 Tyr Ser Pro Lys Met Gln Leu Val Cys Cys Arg Ala Ile Val Lys Val
 450 455 460
 Phe Leu Ala Leu Ala Ala Lys Gly Pro Val Leu Arg Asn Cys Ile Ser
 465 470 475 480
 Thr Val Val His Gln Gly Leu Ile Arg Ile Cys Ser Lys Pro Val Val
 485 490 495
 Leu Pro Lys Gly Pro Glu Ser Glu Ser Glu Asp His Arg Ala Ser Gly
 500 505 510

Glu Val Arg Thr Gly Lys Trp Lys Val Pro Thr Tyr Lys Asp Tyr Val
 515 520 525
 Asp Leu Phe Arg His Leu Leu Ser Ser Asp Gln Met Met Asp Ser Ile
 530 535 540
 Leu Ala Asp Glu Ala Phe Phe Ser Val Asn Ser Ser Ser Glu Ser Leu
 545 550 555 560
 Asn His Leu Leu Tyr Asp Glu Phe Val Lys Ser Val Leu Lys Ile Val
 565 570 575
 Glu Lys Leu Asp Leu Thr Leu Glu Ile Gln Thr Val Gly Glu Gln Glu
 580 585 590
 Asn Gly Asp Glu Ala Pro Gly Val Trp Met Ile Pro Thr Ser Asp Pro
 595 600 605
 Ala Ala Asn Leu His Pro Ala Lys Pro Lys Asp Phe Ser Ala Phe Ile
 610 615 620
 Asn Leu Val Glu Phe Cys Arg Glu Ile Leu Pro Glu Lys Gln Ala Glu
 625 630 635 640
 Phe Phe Glu Pro Trp Val Tyr Ser Phe Ser Tyr Glu Leu Ile Leu Gln
 645 650 655
 Ser Thr Arg Leu Pro Leu Ile Ser Gly Phe Tyr Lys Leu Leu Ser Ile
 660 665 670
 Thr Val Arg Asn Ala Lys Lys Ile Lys Tyr Phe Glu Gly Val Ser Pro
 675 680 685
 Lys Ser Leu Lys His Ser Pro Glu Asp Pro Glu Lys Tyr Ser Cys Phe
 690 695 700
 Ala Leu Phe Val Lys Phe Gly Lys Glu Val Ala Val Lys Met Lys Gln
 705 710 715 720
 Tyr Lys Asp Glu Leu Leu Ala Ser Cys Leu Thr Phe Leu Leu Ser Leu
 725 730 735
 Pro His Asn Ile Glu Leu Asp Val Arg Ala Tyr Val Pro Ala Leu
 740 745 750
 Gln Met Ala Phe Lys Leu Gly Leu Ser Tyr Thr Pro Leu Ala Glu Val
 755 760 765
 Gly Leu Asn Ala Leu Glu Glu Trp Ser Ile Tyr Ile Asp Arg His Val
 770 775 780
 Met Gln Pro Tyr Tyr Lys Asp Ile Leu Pro Cys Leu Asp Gly Tyr Leu
 785 790 795 800
 Lys Thr Ser Ala Leu Ser Asp Glu Thr Lys Asn Asn Trp Glu Val Ser
 805 810 815
 Ala Leu Ser Arg Ala Ala Gln Lys Gly Phe Asn Lys Val Val Leu Lys
 820 825 830
 His Leu Lys Lys Thr Lys Asn Leu Ser Ser Asn Glu Ala Ile Ser Leu
 835 840 845
 Glu Glu Ile Arg Ile Arg Val Val Gln Met Leu Gly Ser Leu Gly Gly
 850 855 860
 Gln Ile Asn Lys Asn Leu Leu Thr Val Thr Ser Ser Asp Glu Met Met
 865 870 875 880
 Lys Ser Tyr Val Ala Trp Asp Arg Glu Lys Arg Leu Ser Phe Ala Val
 885 890 895
 Pro Phe Arg Glu Met Lys Pro Val Ile Phe Leu Asp Val Phe Leu Pro
 900 905 910
 Arg Val Thr Glu Leu Ala Leu Thr Ala Ser Asp Arg Gln Thr Lys Val
 915 920 925
 Ala Ala Cys Glu Leu Leu His Ser Met Val Met Phe Met Leu Gly Lys
 930 935 940

Ala Thr Gln Met Pro Glu Gly Gly Gln Gly Ala Pro Pro Met Tyr Gln
 945 950 955 960
 Leu Tyr Lys Arg Thr Phe Pro Val Leu Leu Arg Leu Ala Cys Asp Val
 965 970 975
 Asp Gln Val Thr Arg Gln Leu Tyr Glu Pro Leu Val Met Gln Leu Ile
 980 985 990
 His Trp Phe Thr Asn Asn Lys Lys Phe Glu Ser Gln Asp Thr Val Ser
 995 1000 1005
 Leu Leu Glu Ala Ile Leu Asp Gly Ile Val Asp Pro Val Asp Ser Thr
 1010 1015 1020
 Leu Arg Asp Phe Cys Gly Arg Cys Ile Arg Glu Phe Leu Lys Trp Ser
 1025 1030 1035 1040
 Ile Lys Gln Ile Thr Pro Gln Gln Gln Glu Lys Ser Pro Val Asn Thr
 1045 1050 1055
 Lys Ser Leu Phe Lys Arg Leu Tyr Ser Leu Ala Leu His Pro Asn Ala
 1060 1065 1070
 Phe Lys Arg Leu Gly Ala Ser Leu Ala Phe Asn Asn Ile Tyr Arg Glu
 1075 1080 1085
 Phe Arg Glu Glu Glu Ser Leu Val Glu Gln Phe Val Phe Glu Ala Leu
 1090 1095 1100
 Val Ile Tyr Met Glu Ser Leu Ala Leu Ala His Ala Asp Glu Lys Ser
 1105 1110 1115 1120
 Leu Gly Thr Ile Gln Gln Cys Cys Asp Ala Ile Asp His Leu Cys Arg
 1125 1130 1135
 Ile Ile Glu Lys Lys His Val Ser Leu Asn Lys Ala Lys Lys Arg Arg
 1140 1145 1150
 Leu Pro Arg Gly Phe Pro Pro Ser Ala Ser Leu Cys Leu Leu Asp Leu
 1155 1160 1165
 Val Lys Trp Leu Leu Ala His Cys Gly Arg Pro Gln Thr Glu Cys Arg
 1170 1175 1180
 His Lys Ser Ile Glu Leu Phe Tyr Lys Phe Val Pro Leu Leu Pro Gly
 1185 1190 1195 1200
 Asn Arg Ser Pro Asn Leu Trp Leu Lys Asp Val Leu Lys Glu Glu Gly
 1205 1210 1215
 Val Ser Phe Leu Ile Asn Thr Phe Glu Gly Gly Gly Cys Gly Gln Pro
 1220 1225 1230
 Ser Gly Ile Leu Ala Gln Pro Thr Leu Leu Tyr Leu Arg Gly Pro Phe
 1235 1240 1245
 Ser Leu Gln Ala Thr Leu Cys Trp Leu Asp Leu Leu Leu Ala Ala Leu
 1250 1255 1260
 Glu Cys Tyr Asn Thr Phe Ile Gly Glu Arg Thr Val Gly Ala Leu Gln
 1265 1270 1275 1280
 Val Leu Gly Thr Glu Ala Gln Ser Ser Leu Leu Lys Ala Val Ala Phe
 1285 1290 1295
 Phe Leu Glu Ser Ile Ala Met His Asp Ile Ile Ala Ala Glu Lys Cys
 1300 1305 1310
 Phe Gly Thr Gly Ala Ala Gly Asn Arg Thr Ser Pro Gln Glu Gly Glu
 1315 1320 1325
 Arg Tyr Asn Tyr Ser Lys Cys Thr Val Val Val Arg Ile Met Glu Phe
 1330 1335 1340
 Thr Thr Thr Leu Leu Asn Thr Ser Pro Glu Gly Trp Lys Leu Leu Lys
 1345 1350 1355 1360
 Lys Asp Leu Cys Asn Thr His Leu Met Arg Val Leu Val Gln Thr Leu
 1365 1370 1375

Cys Glu Pro Ala Ser Ile Gly Phe Asn Ile Gly Asp Val Gln Val Met
 1380 1385 1390
 Ala His Leu Pro Asp Val Cys Val Asn Leu Met Lys Ala Leu Lys Met
 1395 1400 1405
 Ser Pro Tyr Lys Asp Ile Leu Glu Thr His Leu Arg Glu Lys Ile Thr
 1410 1415 1420
 Ala Gln Ser Ile Glu Glu Leu Cys Ala Val Asn Leu Tyr Gly Pro Asp
 1425 1430 1435 1440
 Ala Gln Val Asp Arg Ser Arg Leu Ala Ala Val Val Ser Ala Cys Lys
 1445 1450 1455
 Gln Leu His Arg Ala Gly Leu Leu His Asn Ile Leu Pro Ser Gln Ser
 1460 1465 1470
 Thr Asp Leu His His Ser Val Gly Thr Glu Leu Leu Ser Leu Val Tyr
 1475 1480 1485
 Lys Gly Ile Ala Pro Gly Asp Glu Arg Gln Cys Leu Pro Ser Leu Asp
 1490 1495 1500
 Leu Ser Cys Lys Gln Leu Ala Ser Gly Leu Leu Glu Leu Ala Phe Ala
 1505 1510 1515 1520
 Phe Gly Gly Leu Cys Glu Arg Leu Val Ser Leu Leu Leu Asn Pro Ala
 1525 1530 1535
 Val Leu Ser Thr Ala Ser Leu Gly Ser Ser Gln Gly Ser Val Ile His
 1540 1545 1550
 Phe Ser His Gly Glu Tyr Phe Tyr Ser Leu Phe Ser Glu Thr Ile Asn
 1555 1560 1565
 Thr Glu Leu Leu Lys Asn Leu Asp Leu Ala Val Leu Glu Leu Met Gln
 1570 1575 1580
 Ser Ser Val Asp Asn Thr Lys Met Val Ser Ala Val Leu Asn Gly Met
 1585 1590 1595 1600
 Leu Asp Gln Ser Phe Arg Glu Arg Ala Asn Gln Lys His Gln Gly Leu
 1605 1610 1615
 Lys Leu Ala Thr Thr Ile Leu Gln His Trp Lys Lys Cys Asp Ser Trp
 1620 1625 1630
 Trp Ala Lys Asp Ser Pro Leu Glu Thr Lys Met Ala Val Leu Ala Leu
 1635 1640 1645
 Leu Ala Lys Ile Leu Gln Ile Asp Ser Ser Val Ser Phe Asn Thr Ser
 1650 1655 1660
 His Gly Ser Phe Pro Glu Val Phe Thr Thr Tyr Ile Ser Leu Leu Ala
 1665 1670 1675 1680
 Asp Thr Lys Leu Asp Leu His Leu Lys Gly Gln Ala Val Thr Leu Leu
 1685 1690 1695
 Pro Phe Phe Thr Ser Leu Thr Gly Gly Ser Leu Glu Glu Leu Arg Arg
 1700 1705 1710
 Val Leu Glu Gln Leu Ile Val Ala His Phe Pro Met Gln Ser Arg Glu
 1715 1720 1725
 Phe Pro Pro Gly Thr Pro Arg Phe Asn Asn Tyr Val Asp Cys Met Lys
 1730 1735 1740
 Lys Phe Leu Asp Ala Leu Glu Leu Ser Gln Ser Pro Met Leu Leu Glu
 1745 1750 1755 1760
 Leu Met Thr Glu Val Leu Cys Arg Glu Gln Gln His Val Met Glu Glu
 1765 1770 1775
 Leu Phe Gln Ser Ser Phe Arg Arg Ile Ala Arg Arg Gly Ser Cys Val
 1780 1785 1790
 Thr Gln Val Gly Leu Leu Glu Ser Val Tyr Glu Met Phe Arg Lys Asp
 1795 1800 1805

Asp Pro Arg Leu Ser Phe Thr Arg Gln Ser Phe Val Asp Arg Ser Leu
 1810 1815 1820
 Leu Thr Leu Leu Trp His Cys Ser Leu Asp Ala Leu Arg Glu Phe Phe
 1825 1830 1835 1840
 Ser Thr Ile Val Val Asp Ala Ile Asp Val Leu Lys Ser Arg Phe Thr
 1845 1850 1855
 Lys Leu Asn Glu Ser Thr Phe Asp Thr Gln Ile Thr Lys Lys Met Gly
 1860 1865 1870
 Tyr Tyr Lys Ile Leu Asp Val Met Tyr Ser Arg Leu Pro Lys Asp Asp
 1875 1880 1885
 Val His Ala Lys Glu Ser Lys Ile Asn Gln Val Phe His Gly Ser Cys
 1890 1895 1900
 Ile Thr Glu Gly Asn Glu Leu Thr Lys Thr Leu Ile Lys Leu Cys Tyr
 1905 1910 1915 1920
 Asp Ala Phe Thr Glu Asn Met Ala Gly Glu Asn Gln Leu Leu Glu Arg
 1925 1930 1935
 Arg Arg Leu Tyr His Cys Ala Ala Tyr Asn Cys Ala Ile Ser Val Ile
 1940 1945 1950
 Cys Cys Val Phe Asn Glu Leu Lys Phe Tyr Gln Gly Phe Leu Phe Ser
 1955 1960 1965
 Glu Lys Pro Glu Lys Asn Leu Ile Phe Glu Asn Leu Ile Asp Leu
 1970 1975 1980
 Lys Arg Arg Tyr Asn Phe Pro Val Glu Val Glu Val Pro Met Glu Arg
 1985 1990 1995 2000
 Lys Lys Lys Tyr Ile Glu Ile Arg Lys Glu Ala Arg Glu Ala Ala Asn
 2005 2010 2015
 Gly Asp Ser Asp Gly Pro Ser Tyr Met Ser Ser Leu Ser Tyr Leu Ala
 2020 2025 2030
 Asp Ser Thr Leu Ser Glu Glu Met Ser Gln Phe Asp Phe Ser Thr Gly
 2035 2040 2045
 Val Gln Ser Tyr Ser Tyr Ser Ser Gln Asp Pro Arg Pro Ala Thr Gly
 2050 2055 2060
 Arg Phe Arg Arg Arg Glu Gln Arg Asp Pro Thr Val His Asp Asp Val
 2065 2070 2075 2080
 Leu Glu Leu Glu Met Asp Glu Leu Asn Arg His Glu Cys Met Ala Pro
 2085 2090 2095
 Leu Thr Ala Leu Val Lys His Met His Arg Ser Leu Gly Pro Pro Gln
 2100 2105 2110
 Gly Glu Glu Asp Ser Val Pro Arg Asp Leu Pro Ser Trp Met Lys Phe
 2115 2120 2125
 Leu His Gly Lys Leu Gly Asn Pro Ile Val Pro Leu Asn Ile Arg Leu
 2130 2135 2140
 Phe Leu Ala Lys Leu Val Ile Asn Thr Glu Glu Val Phe Arg Pro Tyr
 2145 2150 2155 2160
 Ala Lys His Trp Leu Ser Pro Leu Leu Gln Leu Ala Ala Ser Glu Asn
 2165 2170 2175
 Asn Gly Gly Glu Gly Ile His Tyr Met Val Val Glu Ile Val Ala Thr
 2180 2185 2190
 Ile Leu Ser Trp Thr Gly Leu Ala Thr Pro Thr Gly Val Pro Lys Asp
 2195 2200 2205
 Glu Val Leu Ala Asn Arg Leu Leu Asn Phe Leu Met Lys His Val Phe
 2210 2215 2220
 His Pro Lys Arg Ala Val Phe Arg His Asn Leu Glu Ile Ile Lys Thr
 2225 2230 2235 2240

Leu Val Glu Cys Trp Lys Asp Cys Leu Ser Ile Pro Tyr Arg Leu Ile
 2245 2250 2255
 Phe Glu Lys Phe Ser Gly Lys Asp Pro Asn Ser Lys Asp Asn Ser Val
 2260 2265 2270
 Gly Ile Gln Leu Leu Gly Ile Val Met Ala Asn Asp Leu Pro Pro Tyr
 2275 2280 2285
 Asp Pro Gln Cys Gly Ile Gln Ser Ser Glu Tyr Phe Gln Ala Leu Val
 2290 2295 2300
 Asn Asn Met Ser Phe Val Arg Tyr Lys Glu Val Tyr Ala Ala Ala Ala
 2305 2310 2315 2320
 Glu Val Leu Gly Leu Ile Leu Arg Tyr Val Met Glu Arg Lys Asn Ile
 2325 2330 2335
 Leu Glu Glu Ser Leu Cys Glu Leu Val Ala Lys Gln Leu Lys Gln His
 2340 2345 2350
 Gln Asn Thr Met Glu Asp Lys Phe Ile Val Cys Leu Asn Lys Val Thr
 2355 2360 2365
 Lys Ser Phe Pro Pro Leu Ala Asp Arg Phe Met Asn Ala Val Phe Phe
 2370 2375 2380
 Leu Leu Pro Lys Phe His Gly Val Leu Lys Thr Leu Cys Leu Glu Val
 2385 2390 2395 2400
 Val Leu Cys Arg Val Glu Gly Met Thr Glu Leu Tyr Phe Gln Leu Lys
 2405 2410 2415
 Ser Lys Asp Phe Val Gln Val Met Arg His Arg Asp Glu Arg Gln Lys
 2420 2425 2430
 Val Cys Leu Asp Ile Ile Tyr Lys Met Met Pro Lys Leu Lys Pro Val
 2435 2440 2445
 Glu Leu Arg Glu Leu Leu Asn Pro Val Val Glu Phe Val Ser His Pro
 2450 2455 2460
 Ser Thr Thr Cys Arg Glu Gln Met Tyr Asn Ile Leu Met Trp Ile His
 2465 2470 2475 2480
 Asp Asn Tyr Arg Asp Pro Glu Ser Glu Thr Asp Asn Asp Ser Gln Glu
 2485 2490 2495
 Ile Phe Lys Leu Ala Lys Asp Val Leu Ile Gln Gly Leu Ile Asp Glu
 2500 2505 2510
 Asn Pro Gly Leu Gln Leu Ile Ile Arg Asn Phe Trp Ser His Glu Thr
 2515 2520 2525
 Arg Leu Pro Ser Asn Thr Leu Asp Arg Leu Leu Ala Leu Asn Ser Leu
 2530 2535 2540
 Tyr Ser Pro Lys Ile Glu Val His Phe Leu Ser Leu Ala Thr Asn Phe
 2545 2550 2555 2560
 Leu Leu Glu Met Thr Ser Met Ser Pro Asp Tyr Pro Asn Pro Met Phe
 2565 2570 2575
 Glu His Pro Leu Ser Glu Cys Glu Phe Gln Glu Tyr Thr Ile Asp Ser
 2580 2585 2590
 Asp Trp Arg Phe Arg Ser Thr Val Leu Thr Pro Met Phe Val Glu Thr
 2595 2600 2605
 Gln Ala Ser Gln Gly Thr Leu Gln Thr Arg Thr Gln Glu Gly Ser Leu
 2610 2615 2620
 Ser Ala Arg Trp Pro Val Ala Gly Gln Ile Arg Ala Thr Gln Gln Gln
 2625 2630 2635 2640
 His Asp Phe Thr Leu Thr Gln Thr Ala Asp Gly Arg Ser Ser Phe Asp
 2645 2650 2655
 Trp Leu Thr Gly Ser Ser Thr Asp Pro Leu Val Asp His Thr Ser Pro
 2660 2665 2670

Ser Ser Asp Ser Leu Leu Phe Ala His Lys Arg Ser Glu Arg Leu Gln
 2675 2680 2685
 Arg Ala Pro Leu Lys Ser Val Gly Pro Asp Phe Gly Lys Lys Arg Leu
 2690 2695 2700
 Gly Leu Pro Gly Asp Glu Val Asp Asn Lys Val Lys Gly Ala Ala Gly
 2705 2710 2715 2720
 Arg Thr Asp Leu Leu Arg Leu Arg Arg Arg Phe Met Arg Asp Gln Glu
 2725 2730 2735
 Lys Leu Ser Leu Met Tyr Ala Arg Lys Gly Val Ala Glu Gln Lys Arg
 2740 2745 2750
 Glu Lys Glu Ile Lys Ser Glu Leu Lys Met Lys Gln Asp Ala Gln Val
 2755 2760 2765
 Val Leu Tyr Arg Ser Tyr Arg His Gly Asp Leu Pro Asp Ile Gln Ile
 2770 2775 2780
 Lys His Ser Ser Leu Ile Thr Pro Leu Gln Ala Val Ala Gln Arg Asp
 2785 2790 2795 2800
 Pro Ile Ile Ala Lys Gln Leu Phe Ser Ser Leu Phe Ser Gly Ile Leu
 2805 2810 2815
 Lys Glu Met Asp Lys Phe Lys Thr Leu Ser Glu Lys Asn Asn Ile Thr
 2820 2825 2830
 Gln Lys Leu Leu Gln Asp Phe Asn Arg Phe Leu Asn Thr Thr Phe Ser
 2835 2840 2845
 Phe Phe Pro Pro Phe Val Ser Cys Ile Gln Asp Ile Ser Cys Gln His
 2850 2855 2860
 Ala Ala Leu Leu Ser Leu Asp Pro Ala Ala Val Ser Ala Gly Cys Leu
 2865 2870 2875 2880
 Ala Ser Leu Gln Gln Pro Val Gly Ile Arg Leu Leu Glu Glu Ala Leu
 2885 2890 2895
 Leu Arg Leu Leu Pro Ala Glu Leu Pro Ala Lys Arg Val Arg Gly Lys
 2900 2905 2910
 Ala Arg Leu Pro Pro Asp Val Leu Arg Trp Val Glu Leu Ala Lys Leu
 2915 2920 2925
 Tyr Arg Ser Ile Gly Glu Tyr Asp Val Leu Arg Gly Ile Phe Thr Ser
 2930 2935 2940
 Glu Ile Gly Thr Lys Gln Ile Thr Gln Ser Ala Leu Leu Ala Glu Ala
 2945 2950 2955 2960
 Arg Ser Asp Tyr Ser Glu Ala Ala Lys Gln Tyr Asp Glu Ala Leu Asn
 2965 2970 2975
 Lys Gln Asp Trp Val Asp Gly Glu Pro Thr Glu Ala Glu Lys Asp Phe
 2980 2985 2990
 Trp Glu Leu Ala Ser Leu Asp Cys Tyr Asn His Leu Ala Glu Trp Lys
 2995 3000 3005
 Ser Leu Glu Tyr Cys Ser Thr Ala Ser Ile Asp Ser Glu Asn Pro Pro
 3010 3015 3020
 Asp Leu Asn Lys Ile Trp Ser Glu Pro Phe Tyr Gln Glu Thr Tyr Leu
 3025 3030 3035 3040
 Pro Tyr Met Ile Arg Ser Lys Leu Lys Leu Leu Gln Gly Glu Ala
 3045 3050 3055
 Asp Gln Ser Leu Leu Thr Phe Ile Asp Lys Ala Met His Gly Glu Leu
 3060 3065 3070
 Gln Lys Ala Ile Leu Glu Leu His Tyr Ser Gln Glu Leu Ser Leu Leu
 3075 3080 3085
 Tyr Leu Leu Gln Asp Asp Val Asp Arg Ala Lys Tyr Tyr Ile Gln Asn
 3090 3095 3100

Gly Ile Gln Ser Phe Met Gln Asn Tyr Ser Ser Ile Asp Val Leu Leu
 3105 3110 3115 3120
 His Gln Ser Arg Leu Thr Lys Leu Gln Ser Val Gln Ala Leu Thr Glu
 3125 3130 3135
 Ile Gln Glu Phe Ile Ser Phe Ile Ser Lys Gln Gly Asn Leu Ser Ser
 3140 3145 3150
 Gln Val Pro Leu Lys Arg Leu Leu Asn Thr Trp Thr Asn Arg Tyr Pro
 3155 3160 3165
 Asp Ala Lys Met Asp Pro Met Asn Ile Trp Asp Asp Ile Ile Thr Asn
 3170 3175 3180
 Arg Cys Phe Phe Leu Ser Lys Ile Glu Glu Lys Leu Thr Pro Leu Pro
 3185 3190 3195 3200
 Glu Asp Asn Ser Met Asn Val Asp Gln Asp Gly Asp Pro Ser Asp Arg
 3205 3210 3215
 Met Glu Val Gln Glu Gln Glu Glu Asp Ile Ser Ser Leu Ile Arg Ser
 3220 3225 3230
 Cys Lys Phe Ser Met Lys Met Lys Met Ile Asp Ser Ala Arg Lys Gln
 3235 3240 3245
 Asn Asn Phe Ser Leu Ala Met Lys Leu Leu Lys Glu Leu His Lys Glu
 3250 3255 3260
 Ser Lys Thr Arg Asp Asp Trp Leu Val Ser Trp Val Gln Ser Tyr Cys
 3265 3270 3275 3280
 Arg Leu Ser His Cys Arg Ser Arg Ser Gln Gly Cys Ser Glu Gln Val
 3285 3290 3295
 Leu Thr Val Leu Lys Thr Val Ser Leu Leu Asp Glu Asn Asn Val Ser
 3300 3305 3310
 Ser Tyr Leu Xaa Lys Asn Ile Leu Ala Phe Arg Asp Gln Asn Ile Leu
 3315 3320 3325
 Leu Gly Thr Thr Tyr Arg Ile Ile Ala Asn Ala Leu Ser Ser Glu Pro
 3330 3335 3340
 Ala Cys Leu Ala Glu Ile Glu Glu Asp Lys Ala Arg Arg Ile Leu Glu
 3345 3350 3355 3360
 Leu Ser Gly Ser Ser Ser Glu Asp Ser Glu Lys Val Ile Ala Gly Leu
 3365 3370 3375
 Tyr Gln Arg Ala Phe Gln His Leu Ser Glu Ala Val Gln Ala Ala Glu
 3380 3385 3390
 Glu Glu Ala Gln Pro Pro Ser Trp Ser Cys Gly Pro Ala Ala Gly Val
 3395 3400 3405
 Ile Asp Ala Tyr Met Thr Leu Ala Asp Phe Cys Asp Gln Gln Leu Arg
 3410 3415 3420
 Lys Glu Glu Glu Asn Ala Ser Val Thr Asp Ser Ala Glu Leu Gln Ala
 3425 3430 3435 3440
 Tyr Pro Ala Leu Val Val Glu Lys Met Leu Lys Ala Leu Lys Leu Asn
 3445 3450 3455
 Ser Asn Glu Ala Arg Leu Lys Phe Pro Arg Leu Leu Gln Ile Ile Glu
 3460 3465 3470
 Arg Tyr Pro Glu Glu Thr Leu Ser Leu Met Thr Lys Glu Ile Ser Ser
 3475 3480 3485
 Val Pro Cys Trp Gln Phe Ile Ser Trp Ile Ser His Met Val Ala Leu
 3490 3495 3500
 Leu Asp Lys Asp Gln Ala Val Ala Val Gln His Ser Val Glu Glu Ile
 3505 3510 3515 3520
 Thr Asp Asn Tyr Pro Gln Ala Ile Val Tyr Pro Phe Ile Ile Ser Ser
 3525 3530 3535

Glu Ser Tyr Ser Phe Lys Asp Thr Ser Thr Gly His Lys Asn Lys Glu
 3540 3545 3550
 Phe Val Ala Arg Ile Lys Ser Lys Leu Asp Gln Gly Gly Val Ile Gln
 3555 3560 3565
 Asp Phe Ile Asn Ala Leu Asp Gln Leu Ser Asn Pro Glu Leu Leu Phe
 3570 3575 3580
 Lys Asp Trp Ser Asn Asp Val Arg Ala Glu Leu Ala Lys Thr Pro Val
 3585 3590 3595 3600
 Asn Lys Lys Asn Ile Glu Lys Met Tyr Glu Arg Met Tyr Ala Ala Leu
 3605 3610 3615
 Gly Asp Pro Lys Ala Pro Gly Leu Gly Ala Phe Arg Arg Lys Phe Ile
 3620 3625 3630
 Gln Thr Phe Gly Lys Glu Phe Asp Lys His Phe Gly Lys Gly Gly Ser
 3635 3640 3645
 Lys Leu Leu Arg Met Lys Leu Ser Asp Phe Asn Asp Ile Thr Asn Met
 3650 3655 3660
 Leu Leu Leu Lys Met Asn Lys Asp Ser Lys Pro Pro Gly Asn Leu Lys
 3665 3670 3675 3680
 Glu Cys Ser Pro Trp Met Ser Asp Phe Lys Val Glu Phe Leu Arg Asn
 3685 3690 3695
 Glu Leu Glu Ile Pro Gly Gln Tyr Asp Gly Arg Gly Lys Pro Leu Pro
 3700 3705 3710
 Glu Tyr His Val Arg Ile Ala Gly Phe Asp Glu Arg Val Thr Val Met
 3715 3720 3725
 Ala Ser Leu Arg Arg Pro Lys Arg Ile Ile Ile Arg Gly His Asp Glu
 3730 3735 3740
 Arg Glu His Pro Phe Leu Val Lys Gly Gly Glu Asp Leu Arg Gln Asp
 3745 3750 3755 3760
 Gln Arg Val Glu Gln Leu Phe Gln Val Met Asn Gly Ile Leu Ala Gln
 3765 3770 3775
 Asp Ser Ala Cys Ser Gln Arg Ala Leu Gln Leu Arg Thr Tyr Ser Val
 3780 3785 3790
 Val Pro Met Thr Ser Ser Asp Pro Arg Ala Pro Pro Cys Glu Tyr Lys
 3795 3800 3805
 Asp Trp Leu Thr Lys Met Ser Gly Lys His Asp Val Gly Ala Tyr Met
 3810 3815 3820
 Leu Met Tyr Lys Gly Ala Asn Arg Thr Glu Thr Val Thr Ser Glu Arg
 3825 3830 3835 3840
 Lys Arg Glu Ser Lys Val Pro Ala Asp Leu Leu Lys Arg Ala Phe Val
 3845 3850 3855
 Arg Met Ser Thr Ser Pro Glu Ala Phe Leu Ala Leu Arg Ser His Phe
 3860 3865 3870
 Ala Ser Ser His Ala Leu Ile Cys Ile Ser His Trp Ile Leu Gly Ile
 3875 3880 3885
 Gly Asp Arg His Leu Asn Asn Phe Met Val Ala Met Glu Thr Gly Gly
 3890 3895 3900
 Val Ile Gly Ile Asp Phe Gly His Ala Phe Gly Ser Ala Thr Gln Phe
 3905 3910 3915 3920
 Leu Pro Val Pro Glu Leu Met Pro Phe Arg Leu Thr Arg Gln Phe Ile
 3925 3930 3935
 Asn Leu Met Leu Pro Met Lys Glu Thr Gly Leu Met Tyr Ser Ile Met
 3940 3945 3950
 Val His Ala Leu Arg Ala Phe Arg Ser Asp Pro Gly Leu Leu Thr Asn
 3955 3960 3965

Thr Met Asp Val Phe Val Lys Glu Pro Ser Phe Asp Trp Lys Asn Phe
 3970 3975 3980
 Glu Gln Lys Met Leu Lys Lys Gly Gly Ser Trp Ile Gln Glu Ile Asn
 3985 3990 3995 4000
 Val Ala Glu Lys Asn Trp Tyr Pro Arg Gln Lys Ile Cys Tyr Ala Lys
 4005 4010 4015
 Arg Lys Leu Ala Gly Ala Asn Pro Ala Val Ile Thr Cys Asp Glu Leu
 4020 4025 4030
 Leu Leu Gly His Glu Lys Ala Pro Ala Phe Arg Asp Tyr Val Ala Val
 4035 4040 4045
 Ala Arg Gly Ser Lys Asp His Asn Ile Arg Ala Gln Glu Pro Glu Ser
 4050 4055 4060
 Gly Leu Ser Glu Glu Thr Gln Val Lys Cys Ile Met Asp Gln Ala Thr
 4065 4070 4075 4080
 Asp Pro Asn Ile Leu Gly Arg Thr Trp Glu Gly Trp Glu Pro Trp Met
 4085 4090 4095

<210> 35
 <211> 1014
 <212> PRT
 <213> Human

<400> 35

Met Ala Glu Ser Ser Asp Lys Leu Tyr Arg Val Glu Tyr Ala Lys Ser
 1 5 10 15
 Gly Arg Ala Ser Cys Lys Lys Cys Ser Glu Ser Ile Pro Lys Asp Ser
 20 25 30
 Leu Arg Met Ala Ile Met Val Gln Ser Pro Met Phe Asp Gly Lys Val
 35 40 45
 Pro His Trp Tyr His Phe Ser Cys Phe Trp Lys Val Gly His Ser Ile
 50 55 60
 Arg His Pro Asp Val Glu Val Asp Gly Phe Ser Glu Leu Arg Trp Asp
 65 70 75 80
 Asp Gln Gln Lys Val Lys Lys Thr Ala Glu Ala Gly Gly Val Thr Gly
 85 90 95
 Lys Gly Gln Asp Gly Ile Gly Ser Lys Ala Glu Lys Thr Leu Gly Asp
 100 105 110
 Phe Ala Ala Glu Tyr Ala Lys Ser Asn Arg Ser Thr Cys Lys Gly Cys
 115 120 125
 Met Glu Lys Ile Glu Lys Gly Gln Val Arg Leu Ser Lys Lys Met Val
 130 135 140
 Asp Pro Glu Lys Pro Gln Leu Gly Met Ile Asp Arg Trp Tyr His Pro
 145 150 155 160
 Gly Cys Phe Val Lys Asn Arg Glu Glu Leu Gly Phe Arg Pro Glu Tyr
 165 170 175
 Ser Ala Ser Gln Leu Lys Gly Phe Ser Leu Leu Ala Thr Glu Asp Lys
 180 185 190
 Glu Ala Leu Lys Lys Gln Leu Pro Gly Val Lys Ser Glu Gly Lys Arg
 195 200 205
 Lys Gly Asp Glu Val Asp Gly Val Asp Glu Val Ala Lys Lys Lys Ser
 210 215 220
 Lys Lys Glu Lys Asp Lys Asp Ser Lys Leu Glu Lys Ala Leu Lys Ala
 225 230 235 240
 Gln Asn Asp Leu Ile Trp Asn Ile Lys Asp Glu Leu Lys Lys Val Cys
 245 250 255

Ser Thr Asn Asp Leu Lys Glu Leu Leu Ile Phe Asn Lys Gln Gln Val
 260 265 270
 Pro Ser Gly Glu Ser Ala Ile Leu Asp Arg Val Ala Asp Gly Met Val
 275 280 285
 Phe Gly Ala Leu Leu Pro Cys Glu Glu Cys Ser Gly Gln Leu Val Phe
 290 295 300
 Lys Ser Asp Ala Tyr Tyr Cys Thr Gly Asp Val Thr Ala Trp Thr Lys
 305 310 315 320
 Cys Met Val Lys Thr Gln Thr Pro Asn Arg Lys Glu Trp Val Thr Pro
 325 330 335
 Lys Glu Phe Arg Glu Ile Ser Tyr Leu Lys Lys Leu Lys Val Lys Lys
 340 345 350
 Gln Asp Arg Ile Phe Pro Pro Glu Thr Ser Ala Ser Val Ala Ala Thr
 355 360 365
 Pro Pro Pro Ser Thr Ala Ser Ala Pro Ala Ala Val Asn Ser Ser Ala
 370 375 380
 Ser Ala Asp Lys Pro Leu Ser Asn Met Lys Ile Leu Thr Leu Gly Lys
 385 390 395 400
 Leu Ser Arg Asn Lys Asp Glu Val Lys Ala Met Ile Glu Lys Leu Gly
 405 410 415
 Gly Lys Leu Thr Gly Thr Ala Asn Lys Ala Ser Leu Cys Ile Ser Thr
 420 425 430
 Lys Lys Glu Val Glu Lys Met Asn Lys Lys Met Glu Glu Val Lys Glu
 435 440 445
 Ala Asn Ile Arg Val Val Ser Glu Asp Phe Leu Gln Asp Val Ser Ala
 450 455 460
 Ser Thr Lys Ser Leu Gln Glu Leu Phe Leu Ala His Ile Leu Ser Pro
 465 470 475 480
 Trp Gly Ala Glu Val Lys Ala Glu Pro Val Glu Val Val Ala Pro Arg
 485 490 495
 Gly Lys Ser Gly Ala Ala Leu Ser Lys Lys Ser Lys Gly Gln Val Lys
 500 505 510
 Glu Glu Gly Ile Asn Lys Ser Glu Lys Arg Met Lys Leu Thr Leu Lys
 515 520 525
 Gly Gly Ala Ala Val Asp Pro Asp Ser Gly Leu Glu His Ser Ala His
 530 535 540
 Val Leu Glu Lys Gly Gly Lys Val Phe Ser Ala Thr Leu Gly Leu Val
 545 550 555 560
 Asp Ile Val Lys Gly Thr Asn Ser Tyr Tyr Lys Leu Gln Leu Leu Glu
 565 570 575
 Asp Asp Lys Glu Asn Arg Tyr Trp Ile Phe Arg Ser Trp Gly Arg Val
 580 585 590
 Gly Thr Val Ile Gly Ser Asn Lys Leu Glu Gln Met Pro Ser Lys Glu
 595 600 605
 Asp Ala Ile Glu His Phe Met Lys Leu Tyr Glu Glu Lys Thr Gly Asn
 610 615 620
 Ala Trp His Ser Lys Asn Phe Thr Lys Tyr Pro Lys Lys Phe Tyr Pro
 625 630 635 640
 Leu Glu Ile Asp Tyr Gly Gln Asp Glu Glu Ala Val Lys Lys Leu Thr
 645 650 655
 Val Asn Pro Gly Thr Lys Ser Lys Leu Pro Lys Pro Val Gln Asp Leu
 660 665 670
 Ile Lys Met Ile Phe Asp Val Glu Ser Met Lys Lys Ala Met Val Glu
 675 680 685

Tyr Glu Ile Asp Leu Gln Lys Met Pro Leu Gly Lys Leu Ser Lys Arg
 690 695 700
 Gln Ile Gln Ala Ala Tyr Ser Ile Leu Ser Glu Val Gln Gln Ala Val
 705 710 715 720
 Ser Gln Gly Ser Ser Asp Ser Gln Ile Leu Asp Leu Ser Asn Arg Phe
 725 730 735
 Tyr Thr Leu Ile Pro His Asp Phe Gly Met Lys Lys Pro Pro Leu Leu
 740 745 750
 Asn Asn Ala Asp Ser Val Gln Ala Lys Val Glu Met Leu Asp Asn Leu
 755 760 765
 Leu Asp Ile Glu Val Ala Tyr Ser Leu Leu Arg Gly Gly Ser Asp Asp
 770 775 780
 Ser Ser Lys Asp Pro Ile Asp Val Asn Tyr Glu Lys Leu Lys Thr Asp
 785 790 795 800
 Ile Lys Val Val Asp Arg Asp Ser Glu Glu Ala Glu Ile Ile Arg Lys
 805 810 815
 Tyr Val Lys Asn Thr His Ala Thr Thr His Asn Ala Tyr Asp Leu Glu
 820 825 830
 Val Ile Asp Ile Phe Lys Ile Glu Arg Glu Gly Glu Cys Gln Arg Tyr
 835 840 845
 Lys Pro Phe Lys Gln Leu His Asn Arg Arg Leu Leu Trp His Gly Ser
 850 855 860
 Arg Thr Thr Asn Phe Ala Gly Ile Leu Ser Gln Gly Leu Arg Ile Ala
 865 870 875 880
 Pro Pro Glu Ala Pro Val Thr Gly Tyr Met Phe Gly Lys Gly Ile Tyr
 885 890 895
 Phe Ala Asp Met Val Ser Lys Ser Ala Asn Tyr Cys His Thr Ser Gln
 900 905 910
 Gly Asp Pro Ile Gly Leu Ile Leu Leu Gly Glu Val Ala Leu Gly Asn
 915 920 925
 Met Tyr Glu Leu Lys His Ala Ser His Ile Ser Lys Leu Pro Lys Gly
 930 935 940
 Lys His Ser Val Lys Gly Leu Gly Lys Thr Thr Pro Asp Pro Ser Ala
 945 950 955 960
 Asn Ile Ser Leu Asp Gly Val Asp Val Pro Leu Gly Thr Gly Ile Ser
 965 970 975
 Ser Gly Val Asn Asp Thr Ser Leu Leu Tyr Asn Glu Tyr Ile Val Tyr
 980 985 990
 Asp Ile Ala Gln Val Asn Leu Lys Tyr Leu Leu Lys Leu Lys Phe Asn
 995 1000 1005
 Phe Lys Thr Ser Leu Trp
 1010

<210> 36
 <211> 4
 <212> PRT
 <213> Human

<400> 36
 Val Gly Pro Asp
 1

<210> 37
 <211> 5
 <212> PRT

<213> Human

<400> 37

Ile Ser Ala Asp Glu
1 5